

REMARKS

Claims 1-13 and 15 have been amended, claim 14 has been canceled without prejudice or disclaimer and claims 16-41 have been added. No new matter has been introduced. Claims 1-13 and 15-41 are now pending in this application.

Claims 1-13 and 15-41 are believed to be allowable over the art cited in the parent application. For example, in the parent application, previous claims 1, 3-7, 11-13, 15, 16, 22, 24, 27, 29, 32 and 34 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Ketseoglou (U.S. Patent No. 6,138,260) in view of Vilmur (U.S. Patent 5,950,131). Pending claim 1, however, recites features not disclosed or suggested by the combination of Ketseoglou and Vilmur, as discussed in detail below.

Claim 1, as amended, recites receiving the retransmitted data frame at the receiver and comparing the received retransmitted data frame to data frames stored in a buffer, where the data frames stored in the buffer comprise data frames that were received with errors. The Final Office Action mailed September 4, 2003 admits that Ketseoglou does not expressly disclose performing a comparison between the retransmitted data frame and frames stored in a buffer (Final Office Action – page 6). The Final Office Action further states that using a comparison to find a correspondence between two items is very old and well known in the art. The Final Office Action points to Vilmur as allegedly disclosing using a comparator to determine if a received frame is related to a predetermined previously received frame and points to col. 5, lines 22-29 and col. 6, lines 5-19 of Vilmur for support (Final Office Action – page 6). The Final Office Action also states that it would have been obvious to compare a received frame with a previously received frame to see if the received frame matches a previously received frame and that it would

have been obvious to combine this feature of Vilmur with Ketseoglou (Final Office Action – pages 6-7). The applicants respectfully disagree.

Ketseoglou discloses a conventional automatic repeat request (ARQ) procedure in which a previously stored rake-processed transmission result is combined with a second, rake processed retransmission result in an attempt to obtain an adequate signal. The process may be repeated until the resulting processed signal results in an adequate signal or until a predetermined number of attempts is reached (Ketseoglou – col. 6, lines 45-64). In other words, Ketseoglou discloses a conventional ARQ rake procedure in which a particular data frame is transmitted and retransmitted a number of times until results of the combining provides an adequate signal. Ketseoglou does not disclose or suggest comparing a received retransmitted data frame to data frames stored in the buffer, where the data frames stored in the buffer comprise data frames that were received with errors, as recited in amended claim 1.

The Final Office Action states that Vilmur discloses using a comparator to determine if a received frame is related to a predetermined previously received frame and points to col. 5, lines 22-29 and col. 6, lines 5-19 for support (Final Office Action – page 6). The applicants respectfully disagree.

Vilmur is directed to a method for fast pilot channel acquisition (Vilmur – col. 1, lines 7-11). Vilmur at col. 5, lines 22-29 discloses that receiver searcher 114 detects pilot signals by using a matched filter 128 and a memory 130. The matched filter 128 compares detected I and Q pseudorandom noise (PN) sequences received from analog to digital converter (ADC) 110 and predetermined PN sequences stored in the memory to produce a response. This portion of Vilmur discloses comparing detected I and Q PN sequences to predetermined PN sequences stored in a memory. These predetermined I and Q PN sequences are not equivalent to data

frames that contained errors. This portion of Vilmur, therefore, does not disclose or suggest comparing a retransmitted data frame to other data frames stored in a buffer, where the other data frames comprise data frames that were received with errors, as recited in amended claim 1.

Vilmur at col. 6, lines 5-19 discloses that I filter 140 and Q filter 142 (Fig. 1) may be used as the response of the matched filter 128. Summing element 144 combines the response of the I filter 140 and Q filter 142 to produce the response of the matched filter 128. A comparator 146 suppresses the response when the response does not exceed a predetermined threshold. This portion of Vilmur also does not disclose comparing a received data frame to other data frames stored in a buffer, where the other data frames comprise data frames that were received with errors, as recited in amended claim 1.

Since neither Ketseoglou nor Vilmur discloses the claimed comparing, neither reference, taken singly or in combination, can disclose identifying a first data frame stored in the buffer which potentially corresponds to the received retransmitted data frame and combining the received retransmitted data frame with the first data frame to form a combined frame, as also recited in claim 1.

Further, even if, for the sake of argument, the combination of Ketseoglou and Vilmur, was construed to disclose each of the features of claim 1, the applicants submit that there would be no motivation to combine these references absent impermissible hindsight. For example, the Final Office Action states that it would have been obvious in Ketseoglou to combine two items when the probability of a match exceeds at least one threshold since this would indicate that the signals are related and should be combined (Final Office Action – page 7). The applicants respectfully disagree.

First, as discussed above, Ketseoglou discloses a conventional ARQ rake process in which a data frame is retransmitted and combined with the previous transmission until an adequate signal is received. Nothing in Ketseoglou discloses or suggests the claimed method in which previously received data frames that contain errors are stored in a buffer and then a retransmitted data frame is compared to those stored data frames to identify a first data frame that potentially corresponds to the received retransmitted data frame. These features enable the present invention to identify a previous data frame that is related to a retransmitted data frame “without transmitting a signaling message identifying the retransmitted data frame,” as also recited in claim 1. Ketseoglou, as discussed above, discloses a conventional ARQ procedure. Although Ketseoglou does not explicitly disclose transmitting a signaling message identifying the retransmitted data frame, Ketseoglou, as best understood by the applicants, includes a conventional frame identification process, similar to the process described in the Description of Related Art section of the applicants’ disclosure at page 3. Such a conventional procedure includes transmitting a message to identify the retransmitted data frame. Therefore, there would be no reason to modify Ketseoglou to perform the claimed comparing since the retransmitted data frame is already identified.

For at least these reasons, the combination of Ketseoglou and Vilmur does not disclose or suggest each of the features of claim 1. Accordingly, allowance of claim 1 is respectfully requested.

Claims 2-10 depend on claim 1 and are believed to be allowable for at least claim 1 is allowable. In addition, these claims recite additional features not disclosed by the combination of Ketseoglou and Vilmur.

For example, claim 2 recites that the comparing comprises determining whether a likelihood of a match between said received retransmitted data frame and one of said data frames in said buffer exceeds a first predetermined threshold, and the identifying comprises identifying a data frame in which the likelihood of a match exceeds the first predetermined threshold as the first data frame. Neither Ketseoglou nor Vilmur, taken singly or in combination, discloses or suggest these features.

Claim 3 recites performing an error check on the combined data frame and when the combined data frame does not pass the error checking, the receiver stores in the buffer either the combined data frame, or the received retransmitted frame and the matching data frame, depending on whether the likelihood of a match exceeds a second predetermined threshold. Claim 3 also recites sending another retransmission request to the transmitter to request the transmitter to again retransmit the data frame. The combination of Ketseoglou and Vilmur does not disclose or suggest these features.

With respect to a similar feature recited in the parent application, the Final Office Action admitted that the combination of Ketseoglou and Vilmur does not disclose the previously claimed features, but stated that such features would have been obvious to one of ordinary skill in the art (Final Office Action – page 8). The applicants respectfully disagree.

The applicants respectfully request that any subsequent Office Action particularly point to some portion of either Ketseoglou or Vilmur as providing objective motivation as to why it would have been obvious to modify the combination of Ketseoglou and Vilmur to include the feature of storing either the combined data frame or the retransmitted data frame and the first data frame when the likelihood of the match exceeds a second predetermined threshold or allow claim 3.

Claim 4 recites that the comparing includes comparing a likelihood of a match between the received retransmitted data frame and the data frames in the buffer to a first threshold and when the likelihood is below the first threshold for each of the data frames in the buffer, storing said received retransmitted data frame in said buffer. As discussed above with respect to claim 1, the combination of Ketseoglou and Vilmur does not disclose or suggest the claimed comparing. Therefore, the combination cannot disclose or suggest storing in the buffer the retransmitted data frame when the likelihood of a match is below a first threshold, as recited in claim 4.

For at least these additional reasons, withdrawal of the rejection and allowance of claims 2-4 are respectfully requested.

Claims 11 and 13, as amended, recite features similar to those discussed above with respect to claim 1. For reasons similar to those discussed above with respect to claim 1, withdrawal of the rejection and allowance of claims 11 and 13 are respectfully requested.

Claims 12 and 15 depend from claims 11 and 13, respectively, and are believed to be allowable for at least the reasons their respective independent claims are allowable. In addition, these claims recite additional features not disclosed or suggested by the combination of Ketseoglou and Vilmur.

For example, claims 12 and 15 recite features similar to claim 3. For reasons similar to those discussed above with respect to claim 3, withdrawal of the rejection and allowance of claims 12 and 15 are respectfully requested.

NEW CLAIMS

New claims 16-41 have been added. These claims are believed to be allowable over the art cited in the rejections in the parent application (e.g., Ketseoglou, Vilmur, Lee – U.S. Patent No. 5,408,475, Rezaiifar et al. – U.S. Patent No. 6,011,796, Chen et al. – U.S. Patent No. 6,101,168, Soto et al. – U.S. Patent No. 4,989,202, Sakai et al. – U.S. Patent No. 5,235,618, and Gandy – U.S. Patent No. 6,141,352).

For example, claims 16-23 variously depend on claims 1, 11 and 13, and are believed to be allowable for at least the reasons claims 1, 11 and 13 are allowable. None of the references cited in the parent application make up for the deficiencies in the combination of Ketseoglou and Vilmur discussed above with respect to claims 1, 11 and 13.

Claims 24, 31 and 36 recite features similar to those discussed above with respect to claim 1. For reasons similar to those discussed above with respect to claim 1, allowance of claims 24, 31 and 36 is respectfully requested.

Claims 25-30, 32-35 and 37-41 depend from claims 24, 31 and 36, respectively, and are believed to be allowable for at least the reasons their respective independent claims are allowable. In addition, these claims recite additional features not disclosed or suggested by the art cited in the parent application.


For example, claims 27, 34 and 39 recite features similar to those discussed above with respect to claim 3. For reasons similar to those discussed above with respect to claim 3, allowance of claims 27, 34 and 39 is respectfully requested.

CONCLUSION

In view of the foregoing amendments and remarks, applicants respectfully request the timely allowance of this application. If there are any outstanding issues which might be resolved by an interview or an Examiner's amendment, please feel free to call the undersigned attorney at the telephone number shown below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 50-0383 and please credit any excess fees to such deposit account.

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